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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/590,454	08/24/2006	Martin E. Rogers	4271-61	8521

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EXAMINER	
FINK, BRIEANN R	

ART UNIT	PAPER NUMBER
1796	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/590,454	ROGERS ET AL.	
	Examiner	Art Unit	
	Brieann R. Fink	1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 April 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10 and 21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10 and 21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *27 April 2009* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This office action follows a reply filed on April 27, 2009. Claim 1 has been amended. Claim 21 has been added. Claims 1-10 and 21 are currently pending and under examination.

2. The texts of those sections of Title 35 U.S. Code are not included in this section and can be found in a prior Office action.

3. The rejection of claim(s) 1-10 under 35 U.S.C. 102(b) has been fully considered and is withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of *Freeman et al.* (US 6,399,730).

Claim Rejections - 35 USC § 102.

4. Claims 1-4, 8-10, and 21 are rejected under 35 U.S.C. 102(b) as being anticipated by *Freeman et al.* (US 6,399,730).

Freeman et al. discloses a polymerization process by first preparing a mixture of at least one monomer source and a solvent, then adding an initiator source (col. 6, ll. 1-6). The mixture is sprayed into closed vessel (purged with nitrogen (col. 10, ll. 11-15) having a heated, controlled atmosphere, which results in the formation of liquid droplets which free fall through the reactor to obtain a desired degree of polymerization (col. 6, ll. 6-14). *Freeman et al.* discloses the polymerization temperatures as between about 23.8°C and 148.8°C (col. 6, ll. 2-24). This process enables the production of polymeric particles having a size ranging from about 2 microns to about 125,000 microns (col. 6, ll. 37-38 and col.

8, ll. 18-19 and 64-65), which falls within the applicants' definition of microspheres (see instant specification, p. 1, para. 3).

As to claim 2, *Freeman et al.* fails to expressly disclose the use of a nebulizer. However, the applicants describe the nebulizer to be a device that forms an aerosol of liquid droplets (p. 6, para. 1). In this regard, *Freeman et al.* discloses spraying the mixture to form liquid droplets (col. 6, ll. 9-12). *Freeman et al.* further refers to the spray as being atomized (col. 11, ll. 46-49). *Freeman et al.* appears to meet the applicants' definition of a nebulizer.

As to claims 3-4, *Freeman et al.* discloses that it is preferred that the mixture is sprayed into the chamber at the top section of the chamber, where the polymer is then removed from bottom of the reaction chamber (col. 6, ll. 35-36)

As to claim 8, *Freeman et al.* discloses the mixture of initiator and monomers being combined immediately prior to the being sprayed into the reaction chamber (col. 12, ll. 3-5).

As to claim 9, the monomers include styrene, methyl methacrylate, acrylic acids, vinyls, etc (col. 6, ll. 56-61).

As to claim 10, the initiators include those such as peroxides and azo initiators (col. 18, ll. 4-23).

As to claim 21, *Freeman et al.* discloses the fall times to be between about 5 and about 60 seconds (col. 14, ll. 16-24).

Claim Rejections - 35 USC § 103

5. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Freeman et al.* (US 6,399,730), as applied to claim 1 above, and further in view of *Mosso et al.* (US 2001/0051118).

Freeman et al. does not disclose using a UV light to initiate polymerization.

Mosso et al. teaches a particle production apparatus (p. 1, [0005]) in reaction systems wherein the reactants are in the aerosol or vapor phase (p. 4, [0094]). *Mosso et al.* further teaches that solvents or dispersants can be added to the reaction system that absorbs light, and using any light source, this would transfer heat to the reactants allowing them to reach very high temperatures (Id.).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have positioned an intense light next to the reaction chamber of *Freeman et al.* in order to promote reaction initiation.

Further, many free radical initiators, such as peroxides, are initiated by UV light; therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used UV light to initiate the polymerization reaction of *Freeman et al.*

6. Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Freeman et al.* (US 6,399,730), as applied to claim 1 above, and further in view of *Jones et al.* (US 4,547,468).

Freeman et al. fails to teach positioning the aerosol generator at the bottom of the reactor or introducing hot air into the reactor.

Jones et al. teaches a method of spray drying, and tested on a type of alumina (col. 8, ll. 48-49). The reactants were mixed and pumped through a nozzle at the bottom of the dryer (col. 8, ll. 53-57). Hot air was introduced at the top of the dryer to produce a counter current flow to that of the nozzle atomized discharge (col. 8, ll. 59-62). *Jones et al.* further teaches that this allows the atomized particles a longer flight-time, compared to co-current atomization where the air and atomized particles flow in the same direction (col. 62-63). See Figure 3 on page 3.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have placed the aerosol generator of *Freeman et al.* at the bottom of the reactor as suggested by *Jones et al.* in order to allow the sprayed liquid droplets to have a longer flight-time, hence allowing the monomers to have more time to polymerize before being collected at the end of the reactor.

As to claim 6, the heated air would assist in the initiation of the polymerization, as well as to control the free fall time of the liquid droplets in the reactor.

Response to Arguments

7. Applicants' arguments, see pages 6-7, filed April 27, 2009, with respect to the rejection(s) of claim(s) 1-10 are moot in view of the new ground(s) of rejection.

a. Applicants argue that the reactor temperature of *Levendis et al.* is too high for the present invention; however, as shown above, *Freeman et al.* discloses a process of polymerization having a temperature range which sufficiently anticipates that of the claimed range, as described above. Applicants further mention the importance of this temperature when polymerizing acrylic acid in water, which *Freeman et al.* specifically discloses. See col. 51, ll. 39-40 and 51-65).

b. Applicants fail to provide any arguments against the obviousness rejections proposed in the previous action (and above), but rather make statements of their broadest teachings, which is not sufficient enough to overcome a *prima facie* case of obviousness.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brieann R. Fink whose telephone number is (571)270-7344. The examiner can normally be reached on Monday through Friday, 7:00 AM to 4:30 PM (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy P. Gulakowski can be reached on (571)272-1302. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/B. R. F./
Examiner, Art Unit 1796

/Randy Gulakowski/
Supervisory Patent Examiner, Art Unit 1796